Appendix A

Sampling and Analysis Plan Tables

Appendix A

Sampling and Analysis Plan Tables

Sampling and Analysis Plan Table for Chemical and Radiological Analysis

04/18/2005 02:01 PM

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Plan Table Number: LTS_ECM_2005

DRAFT

SAP Number:

Sampler: Haney, T. J.

Date: 04/18/2005 Plan Table Revision: 0.0 Project: LONG TERM ECOLOGICAL MONITORING Project Manager: HANEY, T. J./VANHORN, R. L. SMO Contact: MCGRIFF, T. W.

Sample Description						Sample Location				Enter Analysis Types (AT) and Quantity Requested																				
										AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECR141	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR142	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR143	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR144	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR145	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR146	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR147	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR148	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR149	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR150	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	REFERENCE AREA	NA					5		1		1	1		1								
ECR151	REG/QC	PLANT BIOTA	DUP	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							2		2	2		2								
ECR152	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							1		1	1		1								
ECR153	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							1		1	1		1								
ECR154	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							1		1	1		1								
ECR155	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							1		1	1		1								

The sampling activity displayed on this table represents the first 6 to 9 characters of the sample identification number.

The complete sample identification number will appear on the sample labels.

D - Double QC Volume T - Triple QC Volume

AT1: Analysis Suite #1

AT2: Analysis Suite #2

AT3: Analysis Suite #3

AT4: Gamma Screen

AT5: Histapthy

AT6: Hydrogen Ion (pH)

AT7: Mercury

AT8: Mesoarthopod

AT9: Nitroaromatics (8330)

AT10: Radiochemistry - Suite 1

AT11: Radiochemistry - Suite 2

AT12: Total Metals (TAL)

AT13:

AT14:

AT15:

AT16:

AT17:

AT18:

AT19:

AT20:

Comments:

NODA: Naval Ordnance Disposal Area

MDA: Mass Detonation Area

RAIL: Railcar Explosion area

TAN: Test Area North

BLRS: Big Lost River Sinks

Analysis Suite #3 and gamma screen are field screening tests.

Analysis Suites:

Analysis Suite #1: Moisture Content, Hydrogen Ion (pH), Cation Exchange Capacity

Analysis Suite #2: Earthworm Toxicity Test, Rye Grass Growth Test

Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

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SAP Number:

Sampler: Haney, T. J.

Date: 04/18/2005 Plan Table Revision: 0.0 Project: LONG TERM ECOLOGICAL MONITORING Project Manager: HANEY, T. J./VANHORN, R. L. SMO Contact: MCGRIFF, T. W.

Sample Description						Sample Location				Enter Analysis Types (AT) and Quantity Requested																				
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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECR156	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							1		1	1		1								
ECR157	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							1		1	1		1								
ECR158	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							1		1	1		1								
ECR159	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							1		1	1		1								
ECR160	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	REFERENCE AREA	NA							1		1	1		1								
ECR161	REG/QC	PLANT BIOTA	DUP	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							2		2	2		2								
ECR162	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							1		1	1		1								
ECR163	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							1		1	1		1								
ECR164	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							1		1	1		1								
ECR165	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							1		1	1		1								
ECR166	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							1		1	1		1								
ECR167	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							1		1	1		1								
ECR168	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							1		1	1		1								
ECR169	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							1		1	1		1								
ECR170	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	REFERENCE AREA	NA							1		1	1		1								

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AT7: Mercury

AT8: Mesoarthopod

AT9: Nitroaromatics (8330)

AT10: Radiochemistry - Suite 1

AT11: Radiochemistry - Suite 2

AT12: Total Metals (TAL)

AT13:

AT14:

AT15:

AT16:

AT17:

AT18:

AT19:

AT20:

Comments:

NODA: Naval Ordnance Disposal Area

MDA: Mass Detonation Area

RAIL: Railcar Explosion area

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Contingencies:

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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECR171	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	2						2		2	2		2								
ECR172	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	1						1		1	1		1								
ECR173	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	1						1		1	1		1								
ECR174	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	1						1		1	1		1								
ECR175	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	1						1		1	1		1								
ECR176	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	1						1		1	1		1								
ECR177	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	1						1		1	1		1								
ECR178	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	1						1		1	1		1								
ECR179	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	1						1		1	1		1								
ECR180	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOILS	REFERENCE AREA	0-2 INCHES	1						1		1	1		1								
ECR181	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	2						2		2	2		2								
ECR182	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	1						1		1	1		1								
ECR183	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	1						1		1	1		1								
ECR184	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	1						1		1	1		1								
ECR185	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	1						1		1	1		1								

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AT6: Hydrogen Ion (pH)
AT7: Mercury
AT8: Mesoarthopod
AT9: Nitroaromatics (8330)
AT10: Radiochemistry - Suite 1
AT11: Radiochemistry - Suite 2
AT12: Total Metals (TAL)
AT13:
AT14:
AT15:
AT16:
AT17:
AT18:
AT19:
AT20:

Comments:
NODA: Naval Ordnance Disposal Area
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Analysis Suite #3 and gamma screen are field screening tests.

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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECR186	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	1						1		1	1		1								
ECR187	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	1						1		1	1		1								
ECR188	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	1						1		1	1		1								
ECR189	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	1						1		1	1		1								
ECR190	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	REFERENCE AREA	2-24 INCHES	1						1		1	1		1								
ECR191	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								2												
ECR192	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								1												
ECR193	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								1												
ECR194	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								1												
ECR195	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								1												
ECR196	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								1												
ECR197	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								1												
ECR198	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								1												
ECR199	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								1												
ECR200	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-3 INCHES								1												

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AT10: Radiochemistry - Suite 1
AT11: Radiochemistry - Suite 2
AT12: Total Metals (TAL)
AT13:
AT14:
AT15:
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ECR201	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		2																		
ECR202	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		1																		
ECR203	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		1																		
ECR204	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		1																		
ECR205	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		1																		
ECR206	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		1																		
ECR207	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		1																		
ECR208	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		1																		
ECR209	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		1																		
ECR210	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	REFERENCE AREA	0-12 INCHES		1																		
ECR211	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	REFERENCE AREA	MACKAY RES										1		1								
ECR212	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	REFERENCE AREA	MACKAY RES										1		1								
ECR213	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	REFERENCE AREA	MACKAY RES										1		1								
ECR214	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	REFERENCE AREA	MACKAY RES										1		1								
ECR215	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	REFERENCE AREA	MACKAY RES										1		1								

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ECR216	REG	WATER	GRAB	COMP	06/01/2005	INEEL	POND WATER	REFERENCE AREA	MACKAY RES										1		1								
ECR217	REG	WATER	GRAB	COMP	06/01/2005	INEEL	POND WATER	REFERENCE AREA	MACKAY RES										1		1								
ECR218	REG	WATER	GRAB	COMP	06/01/2005	INEEL	POND WATER	REFERENCE AREA	MACKAY RES										1		1								
ECR219	REG	WATER	GRAB	COMP	06/01/2005	INEEL	POND WATER	REFERENCE AREA	MACKAY RES										1		1								
ECR220	REG	WATER	GRAB	COMP	06/01/2005	INEEL	POND WATER	REFERENCE AREA	MACKAY RES										1		1								
ECR221	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	TADPOLE/FROG	REFERENCE AREA	MACKAY RES										1		1								
ECR222	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	TADPOLE/FROG	REFERENCE AREA	MACKAY RES										1		1								
ECR223	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	TADPOLE/FROG	REFERENCE AREA	MACKAY RES										1		1								
ECR224	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	TADPOLE/FROG	REFERENCE AREA	MACKAY RES										1		1								
ECR225	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	TADPOLE/FROG	REFERENCE AREA	MACKAY RES										1		1								
ECR226	REG	SEDIMENT	GRAB	COMP	06/01/2005	INEEL	SEDIMENT	REFERENCE AREA	MACKAY RES						1				1		1								
ECR227	REG	SEDIMENT	GRAB	COMP	06/01/2005	INEEL	SEDIMENT	REFERENCE AREA	MACKAY RES						1				1		1								
ECR228	REG	SEDIMENT	GRAB	COMP	06/01/2005	INEEL	SEDIMENT	REFERENCE AREA	MACKAY RES						1				1		1								
ECR229	REG	SEDIMENT	GRAB	COMP	06/01/2005	INEEL	SEDIMENT	REFERENCE AREA	MACKAY RES						1				1		1								
ECR230	REG	SEDIMENT	GRAB	COMP	06/01/2005	INEEL	SEDIMENT	REFERENCE AREA	MACKAY RES						1				1		1								

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D - Double QC Volume **T - Triple QC Volume**

AT1: Analysis Suite #1

AT2: Analysis Suite #2

AT3: Analysis Suite #3

AT4: Gamma Screen

AT5: Histapthy

AT6: Hydrogen Ion (pH)

AT7: Mercury

AT8: Mesoarthopod

AT9: Nitroaromatics (8330)

AT10: Radiochemistry - Suite 1

AT11: Radiochemistry - Suite 2

AT12: Total Metals (TAL)

AT13:

AT14:

AT15:

AT16:

AT17:

AT18:

AT19:

AT20:

Comments:

NODA: Naval Ordnance Disposal Area

MDA: Mass Detonation Area

RAIL: Railcar Explosion area

TAN: Test Area North

BLRS: Big Lost River Sinks

Analysis Suite #3 and gamma screen are field screening tests.

Analysis Suites:

Analysis Suite #1: Moisture Content, Hydrogen Ion (pH), Cation Exchange Capacity

Analysis Suite #2: Earthworm Toxicity Test, Rye Grass Growth Test

Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Plan Table Number: LTS_ECM_2005

DRAFT

SAP Number:

Sampler: Haney, T. J.

Date: 04/18/2005 Plan Table Revision: 0.0 Project: LONG TERM ECOLOGICAL MONITORING Project Manager: HANEY, T. J./VANHORN, R. L. SMO Contact: MCGRIFF, T. W.

Sample Description						Sample Location				Enter Analysis Types (AT) and Quantity Requested																				
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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECT147	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT148	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT149	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT150	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT151	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT152	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT153	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT154	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT155	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT156	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	TAN	NA					5		1			1		1								
ECT157	REG/QC	PLANT BIOTA	DUP	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							2			2		2								
ECT158	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							1			1		1								
ECT159	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							1			1		1								
ECT160	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							1			1		1								
ECT161	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							1			1		1								

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AT2: Analysis Suite #2

AT3: Analysis Suite #3

AT4: Gamma Screen

AT5: Histapthy

AT6: Hydrogen Ion (pH)

AT7: Mercury

AT8: Mesoarthopod

AT9: Nitroaromatics (8330)

AT10: Radiochemistry - Suite 1

AT11: Radiochemistry - Suite 2

AT12: Total Metals (TAL)

AT13:

AT14:

AT15:

AT16:

AT17:

AT18:

AT19:

AT20:

Comments:

NODA: Naval Ordnance Disposal Area

MDA: Mass Detonation Area

RAIL: Railcar Explosion area

TAN: Test Area North

BLRS: Big Lost River Sinks

Analysis Suite #3 and gamma screen are field screening tests.

Analysis Suites:

Analysis Suite #1: Moisture Content, Hydrogen Ion (pH), Cation Exchange Capacity

Analysis Suite #2: Earthworm Toxicity Test, Rye Grass Growth Test

Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Plan Table Number: LTS_ECM_2005

DRAFT

SAP Number:

Sampler: Haney, T. J.

Date: 04/18/2005 Plan Table Revision: 0.0 Project: LONG TERM ECOLOGICAL MONITORING Project Manager: HANEY, T. J./VANHORN, R. L. SMO Contact: MCGRIFF, T. W.

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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECT162	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							1			1		1								
ECT163	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							1			1		1								
ECT164	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							1			1		1								
ECT165	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							1			1		1								
ECT166	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	TAN	NA							1			1		1								
ECT167	REG/QC	PLANT BIOTA	DUP	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							2			2		2								
ECT168	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							1			1		1								
ECT169	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							1			1		1								
ECT170	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							1			1		1								
ECT171	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							1			1		1								
ECT172	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							1			1		1								
ECT173	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							1			1		1								
ECT174	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							1			1		1								
ECT175	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							1			1		1								
ECT176	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	TAN	NA							1			1		1								

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D - Double QC Volume **T - Triple QC Volume**

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AT3: Analysis Suite #3

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AT8: Mesoarthopod

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NODA: Naval Ordnance Disposal Area

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RAIL: Railcar Explosion area

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Analysis Suite #3 and gamma screen are field screening tests.

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Analysis Suite #1: Moisture Content, Hydrogen Ion (pH), Cation Exchange Capacity

Analysis Suite #2: Earthworm Toxicity Test, Rye Grass Growth Test

Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Plan Table Number: LTS_ECM_2005

DRAFT

SAP Number:

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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECT177	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	2						2			2		2								
ECT178	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	1						1			1		1								
ECT179	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	1						1			1		1								
ECT180	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	1						1			1		1								
ECT181	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	1						1			1		1								
ECT182	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	1						1			1		1								
ECT183	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	1						1			1		1								
ECT184	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	1						1			1		1								
ECT185	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	1						1			1		1								
ECT186	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	TAN	0-2 INCHES	1						1			1		1								
ECT187	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	2						2			2		2								
ECT188	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	1						1			1		1								
ECT189	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	1						1			1		1								
ECT190	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	1						1			1		1								
ECT191	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	1						1			1		1								

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D - Double QC Volume **T - Triple QC Volume**

AT1: Analysis Suite #1

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AT8: Mesoarthopod

AT9: Nitroaromatics (8330)

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AT11: Radiochemistry - Suite 2

AT12: Total Metals (TAL)

AT13:

AT14:

AT15:

AT16:

AT17:

AT18:

AT19:

AT20:

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RAIL: Railcar Explosion area

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Analysis Suite #3 and gamma screen are field screening tests.

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Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Plan Table Number: LTS_ECM_2005

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SAP Number:

Sampler: Haney, T. J.

Date: 04/18/2005 Plan Table Revision: 0.0 Project: LONG TERM ECOLOGICAL MONITORING Project Manager: HANEY, T. J./VANHORN, R. L. SMO Contact: MCGRIFF, T. W.

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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECT192	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	1						1			1		1								
ECT193	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	1						1			1		1								
ECT194	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	1						1			1		1								
ECT195	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	1						1			1		1								
ECT196	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	TAN	2-24 INCHES	1						1			1		1								
ECT197	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								2												
ECT198	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								1												
ECT199	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								1												
ECT200	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								1												
ECT201	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								1												
ECT202	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								1												
ECT203	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								1												
ECT204	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								1												
ECT205	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								1												
ECT206	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-3 INCHES								1												

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AT8: Mesoarthopod
AT9: Nitroaromatics (8330)
AT10: Radiochemistry - Suite 1
AT11: Radiochemistry - Suite 2
AT12: Total Metals (TAL)
AT13:
AT14:
AT15:
AT16:
AT17:
AT18:
AT19:
AT20:

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ECT207	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		2																		
ECT208	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		1																		
ECT209	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		1																		
ECT210	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		1																		
ECT211	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		1																		
ECT212	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		1																		
ECT213	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		1																		
ECT214	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		1																		
ECT215	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		1																		
ECT216	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	TAN	0-12 INCHES		1																		
ECT217	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	IET POND (TAN)	0-6 INCHES							1				1									
ECT218	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	IET POND (TAN)	6-24 INCHES							1				1									
ECT219	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	IET POND (TAN)	24-48 INCHES							1				1									
ECT220	REG	ANIMAL BIOTA	COMP	GRAB	06/01/2005	INEEL	TADPOLE/FROG	TRA COLD WAS PO	NA										1		1								
ECT221	REG	ANIMAL BIOTA	COMP	GRAB	06/01/2005	INEEL	TADPOLE/FROG	TRA COLD WAS PO	NA										1		1								

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ECT222	REG	ANIMAL BIOTA	COMP	GRAB	06/01/2005	INEEL	TADPOLE/FROG	TRA COLD WAS PO	NA										1		1								
ECT223	REG	ANIMAL BIOTA	COMP	GRAB	06/01/2005	INEEL	TADPOLE/FROG	TRA COLD WAS PO	NA										1		1								
ECT224	REG	ANIMAL BIOTA	COMP	GRAB	06/01/2005	INEEL	TADPOLE/FROG	TRA COLD WAS PO	NA										1		1								
ECT225	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	TRA COLD WAS PO	NA										1		1								
ECT226	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	TRA COLD WAS PO	NA										1		1								
ECT227	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	TRA COLD WAS PO	NA										1		1								
ECT228	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	TRA COLD WAS PO	NA										1		1								
ECT229	REG	PLANT BIOTA	COMP	GRAB	06/01/2005	INEEL	CATTAIL	TRA COLD WAS PO	NA										1		1								
ECT230	REG	WATER	COMP	GRAB	06/01/2005	INEEL	PONDWATER	TRA COLD WAS PO	NA										1		1								
ECT231	REG	WATER	COMP	GRAB	06/01/2005	INEEL	PONDWATER	TRA COLD WAS PO	NA										1		1								
ECT232	REG	WATER	COMP	GRAB	06/01/2005	INEEL	PONDWATER	TRA COLD WAS PO	NA										1		1								
ECT233	REG	WATER	COMP	GRAB	06/01/2005	INEEL	PONDWATER	TRA COLD WAS PO	NA										1		1								
ECT234	REG	WATER	COMP	GRAB	06/01/2005	INEEL	PONDWATER	TRA COLD WAS PO	NA										1		1								
ECT235	REG	SEDIMENT	COMP	GRAB	06/01/2005	INEEL	SEDIMENT	TRA COLD WAS PO	NA						1				1		1								
ECT236	REG	SEDIMENT	COMP	GRAB	06/01/2005	INEEL	SEDIMENT	TRA COLD WAS PO	NA						1				1		1								

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D - Double QC Volume **T - Triple QC Volume**

AT1: Analysis Suite #1

AT2: Analysis Suite #2

AT3: Analysis Suite #3

AT4: Gamma Screen

AT5: Histapthy

AT6: Hydrogen Ion (pH)

AT7: Mercury

AT8: Mesoarthopod

AT9: Nitroaromatics (8330)

AT10: Radiochemistry - Suite 1

AT11: Radiochemistry - Suite 2

AT12: Total Metals (TAL)

AT13:

AT14:

AT15:

AT16:

AT17:

AT18:

AT19:

AT20:

Comments:

NODA: Naval Ordnance Disposal Area

MDA: Mass Detonation Area

RAIL: Railcar Explosion area

TAN: Test Area North

BLRS: Big Lost River Sinks

Analysis Suite #3 and gamma screen are field screening tests.

Analysis Suites:

Analysis Suite #1: Moisture Content, Hydrogen Ion (pH), Cation Exchange Capacity

Analysis Suite #2: Earthworm Toxicity Test, Rye Grass Growth Test

Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Plan Table Number: LTS_ECM_2005

DRAFT

SAP Number:

Sampler: Haney, T. J.

Date: 04/18/2005 Plan Table Revision: 0.0 Project: LONG TERM ECOLOGICAL MONITORING Project Manager: HANEY, T. J./VANHORN, R. L. SMO Contact: MCGRIFF, T. W.

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										AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECT237	REG	SEDIMENT	COMP	GRAB	06/01/2005	INEEL	SEDIMENT	TRA COLD WAS PO	NA						1				1		1								
ECT238	REG	SEDIMENT	COMP	GRAB	06/01/2005	INEEL	SEDIMENT	TRA COLD WAS PO	NA						1				1		1								
ECT239	SC+REG (SCREEN + REGULAR SAMPLES)	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1			1		1	1										
ECT240	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1																
ECT241	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1																
ECT242	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1																
ECT243	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1																
ECT244	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1																
ECT245	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1																
ECT246	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1																
ECT247	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1																
ECT248	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	0-2 FT			1	1																
ECT249	SC+REG	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1			1		1	1										

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AT14:
AT15:
AT16:
AT17:
AT18:
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	(SCREEN + REGULAR SAMPLES)																												
ECT250	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1																
ECT251	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1																
ECT252	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1																
ECT253	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1																
ECT254	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1																
ECT255	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1																
ECT256	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1																
ECT257	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1																
ECT258	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	2-4 FT			1	1																
ECT259	SC+REG (SCREEN + REGULAR SAMPLES)	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1			1		1	1										

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AT18:

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ECT260	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1																
ECT261	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1																
ECT262	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1																
ECT263	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1																
ECT264	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1																
ECT265	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1																
ECT266	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1																
ECT267	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1																
ECT268	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	4-6 FT			1	1																
ECT269	SC+REG (SCREEN + REGULAR SAMPLES)	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1			1		1	1										
ECT270	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1																
ECT271	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1																
ECT272	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1																

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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECT273	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1																
ECT274	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1																
ECT275	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1																
ECT276	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1																
ECT277	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1																
ECT278	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	6-8 FT			1	1																
ECT279	SC+REG (SCREEN + REGULAR SAMPLES)	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1			1		1	1										
ECT280	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1																
ECT281	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1																
ECT282	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1																
ECT283	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1																
ECT284	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1																
ECT285	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1																

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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECT286	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1																
ECT287	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1																
ECT288	SCREEN	SEDIMENT	COMP	GRAB	06/01/2005	BLRS	SEDIMENT	SINKS	8-10 FT			1	1																
ECX121	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX122	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX123	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX124	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX125	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX126	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX127	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX128	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX129	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX130	REG	ANIMAL BIOTA	GRAB	COMP	06/01/2005	INEEL	DEER MOUSE	MDA	NA					5		1		1	1		1								
ECX131	REG/QC	PLANT BIOTA	DUP	COMP	06/01/2005	INEEL	SAGEBRUSH	NODA	NA							2		2	2		2								
ECX132	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	NODA	NA							1		1	1		1								

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ECX133	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	NODA	NA							1		1	1		1								
ECX134	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	NODA	NA							1		1	1		1								
ECX135	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	NODA	NA							1		1	1		1								
ECX136	REG/QC	PLANT BIOTA	DUP	COMP	06/01/2005	INEEL	CRESTED WHEATGR	NODA	NA							2		2	2		2								
ECX137	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	NODA	NA							1		1	1		1								
ECX138	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	NODA	NA							1		1	1		1								
ECX139	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	NODA	NA							1		1	1		1								
ECX140	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	NODA	NA							1		1	1		1								
ECX141	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SURFACE SOIL	NODA	0-2 INCHES	2						2		2	2		2								
ECX142	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	NODA	0-2 INCHES	1						1		1	1		1								
ECX143	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	NODA	0-2 INCHES	1						1		1	1		1								
ECX144	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	NODA	0-2 INCHES	1						1		1	1		1								
ECX145	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	NODA	0-2 INCHES	1						1		1	1		1								
ECX146	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	NODA	2-24 INCHES	2						2		2	2		2								
ECX147	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	NODA	2-24 INCHES	1						1		1	1		1								

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AT7: Mercury

AT8: Mesoarthopod

AT9: Nitroaromatics (8330)

AT10: Radiochemistry - Suite 1

AT11: Radiochemistry - Suite 2

AT12: Total Metals (TAL)

AT13:

AT14:

AT15:

AT16:

AT17:

AT18:

AT19:

AT20:

Comments:

NODA: Naval Ordnance Disposal Area

MDA: Mass Detonation Area

RAIL: Railcar Explosion area

TAN: Test Area North

BLRS: Big Lost River Sinks

Analysis Suite #3 and gamma screen are field screening tests.

Analysis Suites:

Analysis Suite #1: Moisture Content, Hydrogen Ion (pH), Cation Exchange Capacity

Analysis Suite #2: Earthworm Toxicity Test, Rye Grass Growth Test

Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Plan Table Number: LTS_ECM_2005

DRAFT

SAP Number:

Sampler: Haney, T. J.

Date: 04/18/2005 Plan Table Revision: 0.0 Project: LONG TERM ECOLOGICAL MONITORING Project Manager: HANEY, T. J./VANHORN, R. L. SMO Contact: MCGRIFF, T. W.

Sample Description						Sample Location				Enter Analysis Types (AT) and Quantity Requested																			
										AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECX148	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	NODA	2-24 INCHES	1						1		1	1		1								
ECX149	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	NODA	2-24 INCHES	1						1		1	1		1								
ECX150	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	NODA	2-24 INCHES	1						1		1	1		1								
ECX151	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SOIL	NODA	0-3 INCHES								2												
ECX152	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	NODA	0-3 INCHES								1												
ECX153	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	NODA	0-3 INCHES								1												
ECX154	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	NODA	0-3 INCHES								1												
ECX155	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	NODA	0-3 INCHES								1												
ECX156	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SOIL	NODA	0-12 INCHES		2																		
ECX157	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	NODA	0-12 INCHES		1																		
ECX158	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	NODA	0-12 INCHES		1																		
ECX159	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	NODA	0-12 INCHES		1																		
ECX160	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	NODA	0-12 INCHES		1																		
ECX161	REG/QC	PLANT BIOTA	DUP	COMP	06/01/2005	INEEL	SAGEBRUSH	RAIL	NA	2						2		2	2		2								
ECX162	REG	PLANT BIOTA	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	RAIL	NA	1						1		1	1		1								

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The complete sample identification number will appear on the sample labels.

D - Double QC Volume **T - Triple QC Volume**

AT1: Analysis Suite #1
AT2: Analysis Suite #2
AT3: Analysis Suite #3
AT4: Gamma Screen
AT5: Histapthy
AT6: Hydrogen Ion (pH)
AT7: Mercury
AT8: Mesoarthopod
AT9: Nitroaromatics (8330)
AT10: Radiochemistry - Suite 1
AT11: Radiochemistry - Suite 2
AT12: Total Metals (TAL)
AT13:
AT14:
AT15:
AT16:
AT17:
AT18:
AT19:
AT20:

Comments:
NODA: Naval Ordnance Disposal Area
MDA: Mass Detonation Area
RAIL: Railcar Explosion area
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BLRS: Big Lost River Sinks

Analysis Suite #3 and gamma screen are field screening tests.

Analysis Suites:
Analysis Suite #1: Moisture Content, Hydrogen Ion (pH), Cation Exchange Capacity
Analysis Suite #2: Earthworm Toxicity Test, Rye Grass Growth Test
Analysis Suite #3: Mercury, Nitroaromatics (8330)
Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90
Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Plan Table Number: LTS_ECM_2005

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SAP Number:

Sampler: Haney, T. J.

Date: 04/18/2005 Plan Table Revision: 0.0 Project: LONG TERM ECOLOGICAL MONITORING Project Manager: HANEY, T. J./VANHORN, R. L. SMO Contact: MCGRIFF, T. W.

Sample Description						Sample Location				Enter Analysis Types (AT) and Quantity Requested																				
										AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECX163	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	RAIL	NA	1						1		1	1		1								
ECX164	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	RAIL	NA	1						1		1	1		1								
ECX165	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SAGEBRUSH	RAIL	NA	1						1		1	1		1								
ECX166	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	CRESTED WHEATGR	RAIL	NA	1						1		1	1		1								
ECX167	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	RAIL	NA	1						1		1	1		1								
ECX168	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	RAIL	NA	1						1		1	1		1								
ECX169	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	RAIL	NA	1						1		1	1		1								
ECX170	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	CRESTED WHEATGR	RAIL	NA	1						1		1	1		1								
ECX171	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SURFACE SOIL	RAIL	0-2 INCHES	2						2		2	2		2								
ECX172	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	RAIL	0-2 INCHES	1						1		1	1		1								
ECX173	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	RAIL	0-2 INCHES	1						1		1	1		1								
ECX174	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	RAIL	0-2 INCHES	1						1		1	1		1								
ECX175	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SURFACE SOIL	RAIL	0-2 INCHES	1						1		1	1		1								
ECX176	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	RAIL	2-24 INCHES	2						2		2	2		2								
ECX177	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	RAIL	2-24 INCHES	1						1		1	1		1								

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The complete sample identification number will appear on the sample labels.

D - Double QC Volume **T - Triple QC Volume**

AT1: Analysis Suite #1

AT2: Analysis Suite #2

AT3: Analysis Suite #3

AT4: Gamma Screen

AT5: Histapthy

AT6: Hydrogen Ion (pH)

AT7: Mercury

AT8: Mesoarthopod

AT9: Nitroaromatics (8330)

AT10: Radiochemistry - Suite 1

AT11: Radiochemistry - Suite 2

AT12: Total Metals (TAL)

AT13:

AT14:

AT15:

AT16:

AT17:

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MDA: Mass Detonation Area

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BLRS: Big Lost River Sinks

Analysis Suite #3 and gamma screen are field screening tests.

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Analysis Suite #2: Earthworm Toxicity Test, Rye Grass Growth Test

Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Plan Table Number: LTS_ECM_2005

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Sampler: Haney, T. J.

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Sample Description						Sample Location				Enter Analysis Types (AT) and Quantity Requested																			
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Sampling Activity	Sample Type	Sample Matrix	Coll Type	Sampling Method	Planned Date	Area	Type of Location	Location	Depth (ft)	3A	9A	1G	R5	3Z	PH	HG	3Y	N7	RH	RN	LA								
ECX178	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	RAIL	2-24 INCHES	1						1		1	1		1								
ECX179	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	RAIL	2-24 INCHES	1						1		1	1		1								
ECX180	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SUBSURFACE SOIL	RAIL	2-24 INCHES	1						1		1	1		1								
ECX181	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SOIL	RAIL	0-3 INCHES								2												
ECX182	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	RAIL	0-3 INCHES								1												
ECX183	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	RAIL	0-3 INCHES								1												
ECX184	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	RAIL	0-3 INCHES								1												
ECX185	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	RAIL	0-3 INCHES								1												
ECX186	REG/QC	SOIL	DUP	COMP	06/01/2005	INEEL	SOIL	RAIL	0-12 INCHES		2																		
ECX187	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	RAIL	0-12 INCHES		1																		
ECX188	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	RAIL	0-12 INCHES		1																		
ECX189	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	RAIL	0-12 INCHES		1																		
ECX190	REG	SOIL	GRAB	COMP	06/01/2005	INEEL	SOIL	RAIL	0-12 INCHES		1																		

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Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Plan Table Number: LTS_ECM_2005

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Sample Description					Planned Date	Sample Location				Enter Analysis Types (AT) and Quantity Requested																				
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Analysis Suite #3: Mercury, Nitroaromatics (8330)

Radiochemistry - Suite 1: Am-241, Gamma Spec, Pu-Iso, U-Iso, Sr-90

Radiochemistry - Suite 2: Gross Alpha, Gross Beta, Gamma Spec

Contingencies:

Appendix B

Sample Collection Procedures

Appendix B

Sample Collection Procedures

B-1. OVERVIEW

Sampling for long-term ecological monitoring (LTEM) occurs as presented in the *Long-Term Ecological Monitoring Plan for the Idaho National Engineering and Environmental Laboratory* (INEEL 2004). Efforts are directed at sampling to determine levels of contamination in the selected media and to detect possible effects. Levels of contamination in soil, deer mice, and plants are determined to validate the Operable Unit (OU) 10-04 ecological risk assessment's assumption of no migration of contamination off the areas of concern (AOCs) and to establish a baseline. Effects data are evaluated for soil fauna, plants, mammals, and avian receptors at the AOCs. This appendix presents the sampling procedures used to collect analytical and effects samples at each AOC:

1. Randomly select plots (generally 10) in the site location grids designated for Fiscal Year (FY) 2005 sampling.

2. Prepare the plots by staking the corners and center and distributing mammal traps in 3-m (10-ft) intervals on the 100 × 100-m (110 × 110-yd) plot, as shown in Figure B-1 and discussed in Technical Procedure (TPR) -145,"Biotic and Proximal Soil Sampling."

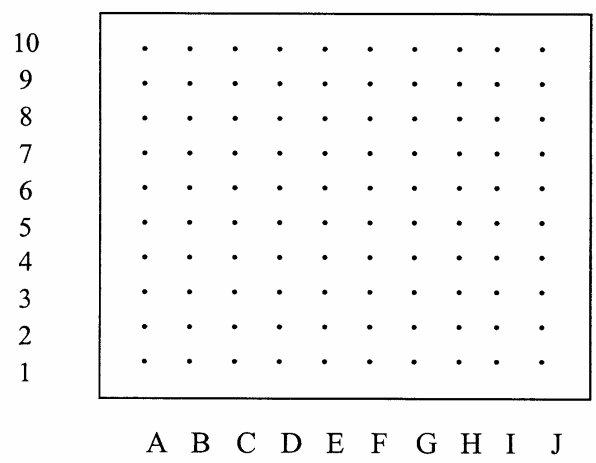

Figure B-1. Example of the transect design.

3. Obtain necessary paperwork, including safe work permits, scientific/trapping collection permits, and radiological work permits.

4. Obtain all sampling equipment, forms, and labels (as required).

5. Sample from May to September 2005:

    a. Perform soil sampling for plant and earthworm bioassays, analytical concentrations, and soil fauna community structure determination with the Berlese funnel extraction procedure.

b. Collect plant tissue for analysis.

c. Sample the small mammal community structure, presence/absence, diversity/richness, and density/biomass using the trap and release methodology (the sampling procedure is presented in Section B-3.1.3).

d. Sample the plant community structure, presence/absence, diversity/richness, and density/biomass (the sampling procedure is presented in Section B-3.1.1).

e. Sample bird community structure, presence/absence, diversity/richness, and density/biomass (the sampling procedure is presented in Section B-3.1.2).

f. Sample deer mouse tissue to obtain effects and analytical data (mice should be collected on the last day of community sampling).

g. Harvest small mammals for analytical concentration determination (the sampling procedure is presented in TPR-145).

h. Harvest small mammals for organ-to-body weight measurements, histopathology, and genetic samples (the sampling procedure is presented in Section B-3.4).

6. Decontaminate sampling equipment, the task site, and personnel (as necessary).

7. Prepare samples for storage and shipment to the appropriate facilities:

a. Histopathology specimens will be shipped to the laboratory.

b. Preserved invertebrates will be sent to the laboratory.

c. Bioassay soils will be shipped to the laboratory for plant and earthworm toxicity bioassays.

d. Soil samples will be shipped to the laboratory for chemical and radiological analysis.

e. Plant and small mammal samples will be frozen and shipped to the laboratory for chemical and radiological analysis.

f. Soil fauna will be extracted and the extract will be shipped to the analyists.

B-2. ANALYTICAL SAMPLING PROCEDURES

B-2.1 Biota Analytical Samples

Samples of vegetation, mammals, and soil will be collected for analysis of contaminant concentration.

B-2.1.1 Vegetation Sampling Procedure for Analytical Sampling

Two types of vegetation (shrubs and grasses), representing the two most common functional plant types at the Idaho National Laboratory (INL), will be collected for chemical analysis. A review of dietary information for herbivorous and omnivorous INL wildlife species has resulted in consideration of the following individual plant species and/or types:

- Wyoming big sagebrush (*Artemisia tridentata*)
- Crested wheatgrass (*Agropyron cristatum*) or Indian rice grass (*Oryzopsis hymendoides)*
- Hardstem bulrush (*Scirpus acutus)* or other aquatic plant.

Sagebrush represents the shrub most commonly used by the INL's primary consumers, including the pronghorn, sage grouse, black-tailed jackrabbit, Nuttall's cottontail rabbit, and the pygmy rabbit. In addition, sagebrush is an important component in the diets of avian and mammalian omnivores and herbivorous insects. Wheatgrasses are most widely used and are significant components in the diets of jackrabbits, cottontail rabbits, birds, and small mammals. If crested wheatgrass is unavailable, or the amount is not sufficient, Indian rice grass or other wheatgrasses will be substituted. Hardstem bulrush nutlets are an important waterfowl and shorebird food, while muskrats and geese eat the rhizomes and stems.

Terrestrial vegetation samples will be collected during the early part of the growing season in conjunction with small mammal population analysis and tissue collection. Grass and sagebrush will be sampled in late May or June.

A field reconnaissance will be used to assess species presence and abundance within each randomly selected 100 × 100-m (110 × 110-yd) grid. If wheatgrass or sagebrush is unavailable, the nearest grid that contains a sufficient amount of these species will be evaluated. A field reconnaissance of potential reference areas also will be completed to match the reference area with the site areas to the greatest extent possible. Final selection of the reference area and sampling grid cells will be based on the presence of suitable species and access.

Each vegetation tissue sample will be a composite of material from at least five individual plants of the same species. Individual plants should be randomly selected from within each 100 × 100-m (110 × 110-yd) grid. Plants sampled should be distributed across the plot if possible. Atypical individuals (i.e., resembles less than 5% of the plants for the area) based on size or herbivory should not be included. If possible, approximately equal amount of vegetation should be collected from each individual plant.

Clean disposable gloves should be worn. Plant samples should be clipped with pruning shears or grass shears (as appropriate). Plant material from each of the five radial plots should be combined into one plastic bag to make a composite sample. Sagebrush should be clipped on at least two sides and at two different heights to obtain a representative sample.

A minimum weight of fresh biomass required for each analysis is to be provided in the Appendix A field guidance forms. If munitions analyses or other analysis are required, additional sampling may be required. Sample weight should be verified in the field to ensure that an adequate quantity has been collected. Plant samples should be placed into a sealable plastic bag that has been placed into another sealable plastic bag. Sharp points on woody vegetation should be bent or broken off within the bag to avoid bag puncture. Bags should be labeled, and the field data should be recorded in notebooks or on field data sheets. Samples should be placed in a cooler on ice until frozen or shipped to the laboratory. Field data will be recorded.

Grass samples should be collected by clipping above ground level (e.g., 1.3 to 5.1 cm [e.g., 0.5 to 2 in.]) with grass shears. Clipping should be adjusted, as needed, to minimize sampling dead vegetation from previous years and to maximize sampling green vegetation from the current growing season. All material above the cutting height will be collected. Dead material should be removed from the sample by hand if unavoidably collected. Grass samples will include new growth of leaves, stems, and any

inflorescences present on the plants. It is desirable to remove as much dead material as possible; however, this might be impractical, and an estimate of the percentage of dead material should be noted.

Shrub samples should be collected using pruning shears. Collected material will include leaf and stem growth from the current season. Shrubs should be clipped at a height between 0.5 and 1.5 m (0.55 and 1.6 yd) on at least two sides. It is common to also collect woody material during this process. Stripping fresh leaves and stems from the woody material might be necessary. In the event that woody material is not removed, the sampler should make an estimate of the remaining amount.

Macrophytic aquatic plants should be collected along the margins of the wastewater ponds and the Big Lost River sinks. One composite sample will be collected at each aquatic sample location. The aboveground portion of each plant should be cut and placed in a labeled, heavy-duty plastic bag and then placed in a cooler with ice for transport to the analytical laboratory.

These procedures can be modified in the field, as appropriate, based on the professional judgment of the field team leader (FTL). All modifications will be documented in the field logbook or on the field sampling data sheets. Soil samples collocated with the plant tissue samples (composited from each corner and the center of the 100 × 100-m [110 × 110-yd] grid) also will be collected.

B-2.1.2 Mammal Sampling Procedure for Analytical Sampling

One small mammal species, the deer mouse *(Peromyscus maniculatus),* representing the major links between primary and secondary consumers and higher predators, will be collected for tissue analyses. The deer mouse is a primary prey item for both secondary and tertiary consumers. This species is commonly used to represent several important linkages in the food chain and is the primary choice because it is omnivorous, widespread, and relatively easy to collect.

Collection of animal samples will be performed in accordance with applicable sections of TPR-145 and the following information. Deer mice will be collected for tissue analysis. Typically, it will be necessary to collect several deer mice for each analysis to obtain the 60 g of tissue required. Deer mice will be composited to obtain the required tissue amounts. Compositing will not include segregation of small mammals by sex or age but will be limited to the single species. Small mammal species—other than deer mice—will be weighed, photographed, have other life history or details recorded in the field logbook, and released.

The deer mouse samples will not be washed before homogenization. The intent of this sample preparation is to evaluate the body parts that a predator is most likely to consume. By incorporating all unwashed biotic tissue, all available contaminants in each sample will be assessed; however, not all analytes are necessarily bioavailable.

The same trapping design (see Section B-3.1.3) used to evaluate small mammal population/community data will be used to collect deer mouse tissue samples for analytical assessment. Ten trapping locations or sample plots will be used in each grid. Each sample plot will require a 2- to 3-week trapping period and will consist of 100 traps placed along 10 parallel transect lines (10 traps on each). Each transect will follow a roughly straight line 100 m (110 yd) long. An example of the transect design is shown in Figure B-1.

At each plot, traps will be opened Monday afternoon and left open (weather permitting) 3 nights (Monday through Wednesday night), closed 4 nights (Thursday through Sunday), and then reopened an additional 3 nights (Monday through Wednesday night). If the weather becomes too hot, it may be necessary to close traps during the day to minimize mortality of diurnal species. Once an animal is

trapped, a uniquely numbered ear tag will be attached. The ear tag correlates with the trap location, genus, species, collector's initials, and date recorded in a field logbook. The animal should be emptied into a plastic bag. It should be sexed, aged (adult/juvenile), weighed, and identified to its species if possible. A ruler should be used to measure the head-body length, ear (from skull to tip), tail, and right hind foot to the nearest millimeter. The animal should then be returned for release to the location it was trapped. All information should be recorded on the data sheet.

Tissues will be collected for chemical and radiological analysis, genetics, and histopathology. On the last day of the population surveys, at least three deer mice in each grid will be retained as a single composite sample. Animals to be sacrificed for contaminant analysis will be dispatched in the field. After dispatch, each carcass will be weighed and placed in another clean plastic bag. The amount of sample material in the composite sample will be determined by summing the weights of the individual specimens from each location. Processing should take place as soon as possible after checking traps to reduce potential degradation of the specimen. Samples will be placed on ice for transport to the processing center.

Portions of each animal's liver and kidney will be collected for weight and histopathology. A ventral incision will be made with a clean scalpel blade. The liver and kidney will be removed and weighed to the nearest 0.01 g. Small sections of the liver and kidney will be sliced and placed in a 10% buffered formalin. This solution is potentially carcinogenic and should be handled with caution that is detailed on the respective material safety data sheets. The jar will be labeled with appropriate sample information (i.e., time, date, and sample identification number). Small sections of maternal and fetal tissue will be removed from female mice. The carcasses will be placed in a sealable plastic bag and placed inside another bag with the sample labeled. Chain-of-custody forms will be filled out.

Tissue samples for residue analysis should be frozen and shipped on Blue Ice (or equivalent) to the laboratory. Dry ice can cause serious skin burns if handled incorrectly. Gloves should be worn when handling dry ice.

A single voucher specimen will be photographed but will not be analyzed for contaminants. An experienced wildlife biologist will examine the voucher specimen to verify genus and species.

B-2.2 Soil Analytical Characterization

Soil samples will be collected from the surface 0 to 5 cm (0 to 2 in.) and subsurface 5 to 61 cm (2 to 24 in.) or bedrock (i.e., limited to two sampling intervals) and will consist of composites from locations within the sampling plot designs that correspond to plants from which vegetation samples are collected.

Before sampling, it is important to calculate the total volume of sample material that will be needed from each increment sample location to ensure that the volume required for each analysis is available to completely fill each sample container. The analysis-specific volumes are specified in the Attachment A field guidance forms. Sampling locations specified will be identified and marked using surveying stakes, lath, or flags. The soil will be evaluated for contamination concentrations.

B-2.2.1 Surface Soil Material

Composite surface material samples will comprise five increment subsamples collected from each of the corners and center point of a 100-m (110-yd) square. All or a portion of the increment samples will be mixed together to create a composite sample representative of average constituent concentrations within the area to be investigated. For a given composite sample, the volume of each increment sample

must be the same and must equal 1/n of the required composite sample volume, where n equals the number of increment samples making up the composite sample.

Surface material samples will be collected as follows:

1. At each subsample location, an area approximately 61 cm (24 in.) in diameter is cleared of surface vegetation, nondecomposed plant litter, and debris.

2. A decontaminated stainless-steel spoon or hand auger is used to collect surface material to a depth of 5 cm (2 in.). A stainless-steel pick can be used as needed to loosen the soil. To the extent possible, gravel-size or larger particles and debris are eliminated, based on visual observation.

3. The material is described visually, and observations are recorded on the soil sample field data sheet.

4. The increment sample is sieved through a No. 10 mesh, and the fine fraction is placed into a decontaminated stainless-steel mixing bowl and then thoroughly mixed.

5. For composite samples, Steps 1 through 4 are repeated at each increment sample location for that composite sample, adding each successive increment sample to the mixing bowl.

6. The sample material is thoroughly mixed in the stainless-steel bowl using a decontaminated stainless-steel spoon. To homogenize the sample, it is divided into four quarters and each quarter is mixed, then the four quarters are combined and the entire sample is mixed. The mixture is placed into the appropriate laboratory-supplied sample containers.

7. The containers are labeled and handled as required. Soil subsample location descriptions and collection information will be documented in the logbook in accordance with Management Control Procedure (MCP) -1194, “Logbook Practices for ER and D&D&D Projects.”

B-2.2.2 Subsurface Soil Material

Subsurface material samples will be collected as composite samples. Before sampling, it is important to calculate the total volume of collected sample material at each increment sample location to ensure that the volume required for each analysis is available to completely fill each sample container. The analysis-specific volumes are specified in the Appendix A field guidance forms. Specified sampling locations will be identified and marked using surveying stakes, lath, or flags.

Composite surface material samples will comprise five increment subsamples collected from each of the corners and center point of a 100-m (110-yd) square. All or a portion of the increment samples will be mixed together to create a composite sample representative of average constituent concentrations within the area to be investigated. For a given composite sample, the volume of each increment sample must be the same and must equal 1/n of the required composite sample volume, where n equals the number of increment samples making up the composite sample.

Subsurface material samples are collected as follows:

1. At each sample location, an area approximately 61 cm (24 in.) in diameter is cleared of surface vegetation (nondecomposed plant litter) and debris.

2. A decontaminated stainless-steel spoon or hand auger is used to collect subsurface material from a depth of 5 cm (2 in.) to no more than 61 cm (24 in.) below ground surface. A stainless-steel pick can be used as needed to loosen the soil. To the extent possible, gravel-size or larger particles and debris are eliminated based on visual observation. Depth must be recorded for each soil core collected.

3. The material is visually described, and observations are recorded on the soil sample field data sheet.

4. The increment sample is sieved through a No. 10 mesh, and the fine fraction is placed into a decontaminated stainless-steel mixing bowl and then thoroughly mixed.

5. For composite samples, Steps 1 through 4 are repeated at each increment sample location for that composite sample, adding each successive increment sample to the mixing bowl.

6. The sample material is thoroughly mixed in the stainless-steel bowl using a decontaminated stainless-steel spoon. To homogenize the sample, it is divided into four quarters and each quarter is mixed, then the four quarters are combined and the entire sample is mixed. The mixture is placed into the appropriate laboratory-supplied sample containers.

7. The containers are labeled and handled as required. Soil subsample location descriptions and collection information will be documented in the logbook in accordance with MCP-1194.

The center of the sample grid location will be surveyed using a Global Positioning System unit.

B-2.3 Soil Nutrient and Physical Characterization

Soil samples for soil nutrient and physical characterization will be collected at the same locations as soil samples for contaminant analysis. Each composite sample will be collected as follows:

- Soil sampling sites will be collocated with chemical and radiological soil samples.

- After collection of the chemical analysis samples (described above), appropriate amounts of homogenized soil will be placed into the shipping containers for analysis. Approximately 500 g will be placed into a sealable plastic bag for soil nutrient and physical characterization.

- The containers will be labeled and handled as specified in the field sampling plan (FSP).

These procedures can be modified in the field, as appropriate, based on the professional judgment of the FTL. All modifications will be documented in the field logbook or on the field sampling data sheets.

B-3. EFFECTS SAMPLING

B-3.1 Population/Community Data

Ecological systems such as populations or communities are usually quite large and complex. These systems must be described and quantified to compare them with one another or assess changes in them. Several ecological variables can be measured (e.g., density, frequency, coverage, and biomass) to describe populations and communities. These measurements are used to characterize aspects of

populations and communities such as presence/absence, population density, population distribution, species diversity, and productivity (biomass).

B-3.1.1 Vegetation

Fifty Daubenmire quadrats will be collected at each of the 10 AOC plots. Transects will be located between each of the 10 trapping lines (see Figure B-1) in each 100 × 100-m plots. Each transect line will have five quadrat locations spaced approximately 2 m (6 ft) apart. These locations will be selected by striding 20 to 25 paces between quadrats starting at the edge of the 100 × 100-m plot. The quadrat frame will be placed with the left side of the short end of the frame at the edge of the right foot. A 1 × 3-m (1.1 × 3.3-yd) quadrat will be used to estimate percent ground cover. As the quadrat frame is placed along the tape at the specified intervals, the canopy coverage of each plant species will be estimated. In addition, the data will be recorded by quadrat, species, and cover class. Canopy coverage can be estimated, as follows, for both perennial and annual plant species:

1. The quadrat frame is observed directly from above, and the cover class for all individuals of a plant species in the quadrat is estimated as a unit. All other kinds of plants are ignored as each plant species is considered separately.

2. A line drawn about the leaf tips of the undisturbed canopies (ignoring inflorescence) is imagined, and these polygonal images are projected onto the ground. This projection is considered "canopy coverage." The classes that the canopy coverage of the species falls into can be determined (see Table B-1).

3. Canopies extending over the quadrat are estimated even if the plants are not rooted in the quadrat.

4. The data are collected during a period of maximum growth for key species.

5. For tiny annuals, it is helpful to estimate the number of individuals that would be required to fill 5% of the frame. A quick estimate of individuals in each frame will then provide an estimate as to whether the aggregate coverage falls in Class 1 or 2, etc.

6. Overlapping canopy cover is included in the cover estimates by species; therefore, total cover might exceed 100%. Total cover might not reflect actual ground cover.

Table B-1. Plant cover classes.

Coverage Class	Range of Coverage (%)	Midpoint of Range (%)
1	0 to 5	2.5
2	6 to 25	15.0
3	26 to 50	37.5
4	51 to 75	62.5
5	76 to 95	85.0
6	95 to 100	97.5

While using this method, it is important to keep track of the growth form of each species so that comparisons of grass vs. forb vs. shrub can be made. In addition, an estimation of the cover of bare ground and rocks will provide additional characterization data. While conducting this survey, it is

important to remember to record total cover for each quadrat, because this might differ from the sum of the cover values for individual species (due to plant canopy overlap). The surveyor should have a cover category for each quadrat among all identifiable species, mosses (if any), bare ground, rocks, and total cover.

Within each quadrat, the shrub height will be measured by species. To measure shrub height, one person will hold a telescoping rod or other measurement device in the center of a shrub while the other person records the height. If no shrub is present within the plot, the closest shrub(s) to the quadrat of each of the dominant species will be measured.

Once the surveys are complete, the species cover can be estimated by multiplying the number of times a class is recorded by the midpoint of that cover class, adding the results for each class, and calculating an average by dividing by the total number of quadrats sampled. Data are usually collected from many quadrats located along a transect, so that the transect is the sample unit. Therefore, data must be collected from several transects to determine the sample's precision for statistical analysis of cover data.

This method recognizes the difficulty in accurately assigning an exact percent cover value to each quadrat, because even highly experienced workers are unlikely to visually estimate closer than about 5% cover. Assigning broad cover classes provides an equally accurate result as long as the data follow a normal distribution around the midpoint within each class. The narrower upper and lower classes of the Daubenmire scale protect against skewed data in extremely sparse or dense vegetation.

Ranking the data into broad classes is also a relatively rapid procedure because observers are not required to spend as much time contemplating quadrat cover to the nearest percent. In fact, rapid evaluation of each quadrat is the key to success with this approach, since a large sample is less sensitive to the occasional incorrect ranking.

B-3.1.2 Avian

The avian wildlife on designated study areas at the INL will be monitored with point counts and nest searches. Avian point counts will be conducted to assess species occurrence and relative abundance in each study area. Point counts have been used throughout North America for long-term bird monitoring programs such as the Breeding Bird Survey (BBS). The BBS is a roadside route survey of avifauna designed to monitor abundance and distribution of birds in both the U.S. and southern Canada. It began in the eastern U.S. in 1966 but is now nationwide in scope (Bystrak 1981; Robbins et al. 1986). Since 1985, official BBS and modified "mini-routes" have been surveyed at the INL (Belthoff and Ellsworth 1999). Nest searches will be used to evaluate the feasibility of harvesting eggs for toxicology research.

Each area of concern (i.e., each WAG) will be divided into 10 randomly chosen 100 m^2 plots according to the small mammal trapping protocol. These plots will be used as a reference for designing walking or driving routes through each area. Routes will be designed to survey an area similar to that covered by the mammal plots, and points will be located near or in the plots as often as possible. Points will be located at least 400 m from the nearest neighboring point. Each point will be named, flagged, and marked using a global positioning system (GPS). Each route consists of 10 point count locations. The route for the reference area was established in 2004 and will remain the same in subsequent years.

Breeding Bird Surveys are conducted during the peak of the nesting season, primarily in June, although surveys in desert regions and some southern states (where the breeding season begins earlier), are conducted in May (http://www.mbr-pwrc.usgs.gov/bbs/genintro.html). Similar to the surveys already established on the INL, the LTEM project surveys will be conducted from mid June to early July. Surveys

will be performed only when weather conditions are satisfactory as prescribed by the BBS protocol. Temperature, wind speed, and cloud cover at the start and end of each survey will be recorded in an entry form as presented in Attachment A.

Each point along a route will be the site of one 3-minute, unlimited radius point count. At each point an observer will count all the individuals seen or heard within the allotted time period. Counting the same individual twice should be avoided even if encountered at different count locations. Surveys begin approximately one-half hour before sunrise and continue until three replicates are completed, with at least 45 minutes elapsing between the start of one replicate and the start of the next. This avoids potential bias that disturbance may cause in subsequent replicates. Surveys will not be conducted during inclement weather, which includes any amount of precipitation, wind exceeding 12 mph, or other conditions that interfere with detecting birds by sight or sound.

Nest searches will also be conducted within the designated mammal plots. Surveyors will systematically walk through each grid with drag lines, or by visual inspection, and flag the location of any nests that were found and record the species and other pertinent information about the nest site. Nests will be digitally photographed.

B-3.1.3 Small Mammals

Small mammals will be evaluated by using live trapping methods. The 10 sample plots established for biota and soil analytical sampling will be used to assess the small mammal population/community data in the sampling area. Each sample plot will require a 2- to 3-week trapping period and will consist of 100 traps placed along 10 transect lines (10 traps on each) in a line grid formation. Each of the transects will approximately follow a 100-m-long (110-yd-long) straight line. An example of the transect design is shown in Figure B-1.

Traps will be left open four nights, closed three nights, and then reopened an additional four nights. Once an animal is trapped, a uniquely numbered ear tag will be attached. The ear tag will correlate with the trap location, genus, species, collector's initials, and date recorded in a field logbook. The animal should be emptied into a plastic bag. It should be sexed, aged (adult/juvenile), weighed, and identified to its species if possible. A ruler should be used to measure the head-body length, ear (from skull to tip), tail, and right hind foot to the nearest millimeter. The animal should then be released to the original location from where it was trapped. All information should be recorded on the data sheet.

The mark-and-recapture method will be used in estimating population densities. This method involves several steps:

1. Trapping and marking some individuals of a population

2. Releasing the known number of marked individuals back into the population from which they were captured

3. Trapping some individuals of the population after the marked individuals have had a chance to redistribute themselves into the population

4. Estimating the total population size by a series of computations that are based on the ratio of marked to unmarked individuals in the recapture attempt.

Generally speaking, if the population is large, the marked individuals will become diluted within the population and only a few of the marked individuals would be expected to appear in the second sample. If assumptions about the sampling and animals' distribution are correct, then the proportion of marked individuals in the second sample would be the same as the entire population.

Like all estimation procedures, a number of assumptions must be met to validly use this method:

- The two samples taken from the population must be random samples (i.e., all individuals in the population have an equal and independent chance of being captured during the time of sampling).
- There is no change in the ratio of marked to unmarked animals, meaning that from initial capture to recapture, there must be no significant addition of unmarked animals to the population through births or immigration.
- The population losses from mortality and emigration must remove the same proportion of marked and unmarked individuals.
- The marking of individuals does not affect their mortality.
- Individuals do not lose marks.

The Peterson-Lincoln Index, the simplest method for determining the population size, will be used. The total population can be estimated as follows:

- Assume the total estimated population size contains N individuals.
- Sample M individuals from this population, mark these animals, and return them to the population.
- Sample a second set of n individuals from the population; this sample contains recaptured animals (i.e., individuals captured and marked in the first sampling).
- Estimate the population size, N, by the following equation.

$$N = Mn / R \tag{B-1}$$

Equation (B-1) might overestimate the population size (i.e., it is biased) when samples are relatively small. Nc is a nearly unbiased estimate of population size if the number of recaptured animals, R, is at least eight. Using Equation B-2 can reduce this bias:

$$Nc = \frac{(M+1)(n+1)-1}{R+1} \tag{B-2}$$

The approximate variance, s^2, of this estimate is in Equation B-3 below:

$$s^2 = \frac{(M+1)(n+1)(M-R)(n-R)}{(R+1)^2(R+2)} \tag{B-3}$$

With the standard deviation, s, 95% and 99% confidence limits on the population estimate are given by Equations B-4 and B-5 below:

$$N \text{ (or NC)} + 1.96(s)(95\% \text{ confidence limits}) \quad \text{(B-4)}$$

and

$$N \text{ (or NC)} + 2.58(s)(99\% \text{ confidence limits}). \quad \text{(B-5)}$$

B-3.1.4 Reptiles

B-3.1.4.1 Introduction. Limited studies have been performed at the INL on reptiles such as the sagebrush lizard and horned lizard. These species, since they presumably have a smaller home range, may be excellent candidates for future monitoring at the sites of concern. The reptiles at the INL appear to have a very patchy distribution and are highly dependent on weather conditions for their metabolic activities. This means that the catchability of reptiles is greatly affected by the sampling design as well as the weather during the sampling period.

Common methods used to sample reptilian populations are:

- Intensive and systematic searching
- Transects
- Pitfall and cover trapping.

The first method basically means that the herpetologist visits every habitat and accurately searches for reptiles. Microhabitats potentially occupied by reptiles include a variety of shelters. Reptiles can be found by overturning rocks, logs, and other “cover” elements, such as sheets of scrap metal, plastic, etc. These sheets may provide a very attractive microhabitat to many reptiles in the spring and early summer since these sheets accumulate warmth. Overturned rocks and twigs should always be replaced in their original position to avoid modifying the habitat. Data on the relative abundance of a given species may be standardized with the searching effort, but these results are highly biased by the experience and ability of the observer.

Transect sampling is usually used for terrestrial species. The investigator first selects the transect length and width and the search effort. Many transects are at least 50 m × 4 m. People commonly use search effort to “define” the length of the transect, so that transects from different locations can be compared even if we don't know the exact transect length. Search effort is defined as number of hour*person (i.e., one person searching during one hour will be 1 hour*person, while 2 persons searching during one hour will be 2 hour*person).

When sampling reptiles, it is usually better to sample favorable habitats at the best time possible (i.e., when reptiles are starting to bask). This usually happens in the early to mid morning depending on the latitude and the weather. Cloudy days are usually better than fully sunny days to observe reptiles. Basking reptiles can be counted along a transect of a known length, or their number may be related to the time spent looking for them. The observer should walk slowly along the transect.

In an area of good habitat, drift fencing may significantly increase the trapping success. The fence should be at least 40 cm high and can be made of a variety of materials (e.g., sheet metal, hard plastic, or plastic sheet). Depending on the site, fences can encircle a hibernaculum. Pitfall traps, such as plastic

buckets, are dug into the ground on both sides of the fence. To avoid water filling the buckets, the traps should have several holes on the bottom. It may also be useful to leave a plastic cover for the buckets between two sections of fence so that when sampling is not possible or desirable, the cover can be removed from the fence and placed over the bucket. Depending on the density of animals, buckets should be placed at a distance of 5 to 25 m along the fence. Buckets must be checked at least once a day, preferably twice. Ideally, animals should be removed from the buckets early in the morning and late in the evening. A variety of amphibian predators can be attracted by the traps; amphibians themselves can also suffer from dessication or freezing. Other animals, especially rodents, can also fall into the traps and are much more vulnerable to die because of their faster metabolism.

Some disadvantages of drift fencing are its high cost and the labor requirements to install fences and control the traps. Also drift fencing can attract predators or be destroyed by large vertebrates or by people. A reduced version of the drift fencing explained above is to cross two short (10 to 50-m) sections of fences and install buckets inside each of the four squares defined by the fences. This design has been used in temperate and tropical forests to sample leaf-litter amphibians.

Pitfall traps used to sample reptiles vary in size according to the target species. Fences are not used to capture reptiles (many reptiles will easily climb them); instead, pitfall traps are placed very close to potential microhabitats. Pitfall traps must be checked frequently for amphibians.

B-3.1.4.2 Idaho National Laboratory Approach. Several methods will be evaluated in 2005 and 2006 to determine which method or combination of methods will provide the best approach for monitoring the sagebrush and horned lizard at the sites. This includes a combination of observation study, track plates, and intensive surveys.

The pitfall traps that are located on the two plots at the reference area during 2004 will be reopened and data will be collected for the two weeks during small mammal trapping at these areas. From the 2004 data, pitfalls do not appear to be highly successful in these areas. This is most likely because they are not in areas of high density for these species. However, the data collected this year will be combined and compared to 2004 information.

B-3.1.4.3 Observational Study, Transects, and Track-Plates. At each plot, each team member will watch for and record reptile activity while checking traps during the morning and afternoon. If possible, when checking the traps, technicians should walk facing north or south because it is easier to detect lizards if the sun is to the right or left of the person.

In the morning, when a reptile is observed, the recorders will write down the plot number, the time each plot is surveyed, the air temperature, and what species were seen. Also surrounding habitat and weather (cloud cover) will be recorded.

On the last day of the first week of small mammal trapping, sheets of aluminum or other types of material to provide an attractive microhabitat will be located across a selected number of plots at even intervals (depending on ability to place a sheet). Ten sheets of approximately 3 × 3 ft will be used.

At these plots, tracking plates and possibly scent stations will be used for animal and reptile detection by luring them to a scent and recording their footprints in a tracking medium. Scent stations consist of 1 × 1-m aluminum plates, heavily smoked with flame, as the tracking surface (Barrett 1983). The scent station attractant, cat food, or predator survey discs will be placed in a slightly elevated position at the center of the station. Stations will be checked for visitation early each morning and tracks will be cleared when necessary. Tracks can be lifted from the plates by lightly pressing with a wide piece of transparent tape. Track outlines will be identified and placed in notebooks for future reference. Track

plates should be cleaned and the tracking medium replaced when rain, heat, or signs disturb the carbon-coated surface.

B-3.1.4.4 Intensive and Systematic Searching. Intensive and systematic searching will be performed on a selected number of plots at each area of concern. The plots selected will be based on the observational data collected during the mammal trapping.

If captured, collection data recorded (see Attachment A) includes; sex, weight (g), snout-vent length (mm), and tail length (mm). A unique number will be written with permanent marker on the ventral surface to identify the individual. Painting the side or leg with a noticeable color of fingernail polish changing day-to-day may also be used to help identify an already-captured animal without recapturing. If not captured, the species and location will be noted.

Note the following when performing intensive searching of terrestrial plots:

- The use of gardening gloves is recommended to avoid bites from ants and other invertebrates.
- When sampling areas that are known habitats of venomous snakes, care should be taken to avoid getting bitten. Hand-held rakes or small sticks can be used to search the leaf litter and when turning logs and rocks. Always turn the log or rock toward you, so that if an aggressive snake is present, your feet are somewhat protected by the log or the rock.

B-3.2 Earthworm and Plant Bioassay Soil Samples

Bioassay soil samples will be collected at each plot. Each composite sample will be collected as follows:

- Soil will be taken evenly from 0 to 30 cm. A composite sample of 4 gals will be collected from five locations at each plot. The five locations will be from the center and four corners of the plot.
- Containers will be labeled with the date, location, and other appropriate information and shipped on ice to the bioassay laboratory for processing.

These procedures can be modified in the field, as appropriate, based on the professional judgment of the FTL. All modifications will be documented in the field logbook or on the field sampling data sheets.

B-3.3 Soil Fauna[a]

B-3.3.1.1 The Animals to be Enumerated. Microarthropods comprise two soil fauna groups: (1) Collembola, also known as springtails, and (2) Acari, also known as mites. The microarthropods are typically the most abundant soil animals in surface layers, especially in association with litter inputs from plants. The size range for microarthropods is 0.1–2.0 mm. Many of these animals are fungus feeders, but many are also predators on each other and on nematodes and flies' eggs. There is a great diversity of species of microarthropods in soil, and considerable time is needed to identify each specimen to species. The approach taken is usually to divide the animals into major subdivision groups within the Collembola

a. Procedure of the laboratory of Dr. Terence McGonigle (Brandon University, Manitoba, Canada) for the determination of soil fauna of microarthropods in a field sample of surface soil with plant litter.

and Acari for counting purposes. The animals occur in the field densities in the range 1,000–50,000 per square m, although the lower part of this range is expected for dry environments.

B-3.3.1.2 Collection of Field Samples. Samples are to be collected as undisturbed soil discs. One sample will be taken from each plot at each area of concern. Each plastic disc circular is 77 mm in internal diameter and 88 mm in external diameter, has a 4-mm depth, and a 45-degree bevel on one outside edge to permit entry into the soil. Each disc is driven flush into the soil using a hammer and wooden board placed above. The disc is then removed intact with litter using a hand trowel and placed upright on a flat surface for immediate transportation to the laboratory.

B-3.3.1.3 Extraction of Fauna from Field Samples. The fauna are subjected to an active extraction for removal from soil. The active extraction can be summarized as applying heat and light above the sample so that the animals walk out the bottom of the disc, where they are collected. The active extraction takes 3–7 days to complete, but it has the advantage of recovering the animals in good condition and mostly free of soil and other debris. Physical separation of animals from field samples by use of high-density fluids is not preferred because animals are typically recovered in poor condition. Full details of available extraction methods are given in "Soil Invertebrates" (Coleman et al. 1999) and "Standard Soil Methods for Long-Term Ecological Research" (Robertson et. al 1999).

Discs returned to the laboratory will be moistened by adding 20 ml water to the surface using a pipette and placed upper surface down into extraction units established in the laboratory. Twelve extraction units can run in the laboratory simultaneously so that three field collections will be processed in separate extraction runs to make 36 samples in all. Each extraction unit has a fiberglass screen nylon mesh supported on a coarse wire grid above a funnel that collects to a plastic vial. A screw-fit lid with an upper airway covers the disc sample to delay moisture loss. A single light with a 60-watt bulb is placed immediately above each disc for up to 7 days, and the fauna are collected in 1-cm depth of 70% ethanol in the vial. Each vial is checked and emptied daily until fauna no longer appear. The total fauna extracted for a given disc is then pooled and stored in 70% ethanol.

B-3.3.1.4 Sorting and Enumeration of Extracted Fauna. All subsequent laboratory work will involve use of the stereoscopic microscope in the laboratory by a knowable expert in this field. Each sample is sorted, using a Pasteur pipette, into major groups within the Collembola and Acari, and the number of animals for each group will be counted. The sorted samples are stored in 70% ethanol in separate glass vials, one for each major group for a disc. The major groups recovered are expected to be as follows:

Collembola[a]	Acari
(All are fungivores)	Mesostigmata (predatory)
Podurids	Oribatids adult (fungivores)
Entomobryids	Oribatids juvenile (fungivores)
Neelids	Astigmata (fungivores)
Symphyla	Prostigmata (most are fungivores, predators can be separated)

a. Collembola groups are further subdivided into epigeous (pigmented, seeing) and hypogeous (non-pigmented, blind) life forms.

B-3.3.1.5 Data Report. The data will be returned as a report summarizing the counts of each major group, as described above, with tallies taken separately for each group for each disc. The report will be submitted along with the fauna samples. Spent soil and litter contents of each disc will be returned to the site.

B-3.4 Histopathology and Body and Organ Weight

Tissues will be collected from small mammals for chemical and radiological analysis, genetics, and histopathology. On the last day of small-mammal population surveys (see Section B-3.1.3), at least three deer mice in each sampling plot will be retained as a single composite sample. Deer mice will be humanely harvested by cervical dislocation or asphyxiation with carbon dioxide gas before transport to the laboratory. Animals should be removed from traps one at a time, so that specimens are not misidentified. Processing should take place as soon as possible after trap checks to reduce potential degradation of the specimen. The deer mice will be weighed in the laboratory to the nearest 0.01 g.

A ventral incision will be made with a clean scalpel blade. The liver and kidney will be weighed to the nearest 0.01 g. Small slices of each will be placed in 10% buffered formalin and the rest will be returned to the carcass. This solution is potentially carcinogenic and should be handled with caution, as detailed on the material safety data sheet. The jar will be labeled with appropriate sample information (time, date, sample identification number, and ear tag number).

The carcasses forming the single composite sample will be placed in a sealable plastic bag, placed inside another bag, and then labeled for contaminant analysis. Chain-of-custody forms will be filled out.

The removal of the kidney and liver may slightly reduce apparent concentrations. Estimated loss in concentration is as shown in Equation (B-6):

mg/kg WB * kg WB + mg/kg L * kg L + mg/kg k * kg k (B-6)

where:

mg/kg WB = concentration in whole body

mg/kg L = concentration in liver (estimated)

mg/kg k = concentration in kidney (estimated).

A bioaccumulation factor from the literature will be used to estimate the fraction lost to histopathology. Although the bioaccumulation factor introduces uncertainty into the assessment, the liver and kidney tend to concentrate metals and might exhibit cellular changes for evaluation of effects from exposure. If effects are determined to be present, a selected study will be performed to further characterize this problem, or the sampling approach will be modified appropriately.

B-4. AQUATIC ECOSYSTEM CHARACTERIZATION

Chilly Slough was selected as the aquatic reference area.

B-4.1 Sediment and Surface Water Analytical Sampling

Sediment and surface water samples will be obtained from the reference area and from the waste ponds at the TAN Technical Support Facility (TSF) -07 if water is available. The data will be used to predict health effects and exposure in aquatic receptors. Five grab samples of each medium will be collected from a 10-m^2 (108-ft^2) grid surrounding the pond. If water is unavailable, the TAN TSF-07 disposal pond will be treated as a terrestrial sampling area.

B-4.2 Biota Analytical and Effects Sampling

If appropriate aquatic receptors are identified and present, they will be collected and identified to the lowest taxonomic level possible. Sixty grams is required for all analytical work. Five samples will be collected from the pond.

Attachment A

Survey Forms and Data Sheets

Date _____

Weather Conditions _____

Cloud cover _____

Reptile Data Sheet

location	plot #	nearest trap #	species	time (24 hrs)	air temp (degree C)	sex	weight (g)	SVL (mm)	tail (mm)	habitat/comments

Date _____

Weather Conditions _____

Cloud cover _____

Reptile Data Sheet

Name ____________________
Date ____________________

Daubenmire Plot Form

Location ____________
Plot Number ____________

DaubPlot #																														
Species	1/4	1/2	1	1/4	1/2	1	1/4	1/2	1	1/4	1/2	1	1/4	1/2	1	1/4	1/2	1	1/4	1/2	1	1/4	1/2	1	1/4	1/2	1	1/4	1/2	1

Daubenmire DataSheet
Checker ____________

Page Number ______________

Recorder's Name _____
Trapper's Name _____

Small Mammal Data Sheet

Date _____
Location _____
Plot # _____

	Trap #	Species	Tag #	Body (mm)	Tail (mm)	Foot (mm)	Ear (mm)	Sex	Mass (g)	Recapture	Dead?	Other
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												

Checker signoff _____

Page Number _____

Observer: _____

Nest Count Data Form

Date	Location	Nest ID	Species	# of eggs	# of young	Nest Site Description	Comments

Observer: ____________
Date: ______________

Avian Point Count Data Form

Temperature ______________
Wind ______________
Cloud cover ______________

Location	Time	Species	Tally			Notes
			< 50 m	> 50 m	Fly Overs	

Page # _________